

Elaine McCluskey

From: Elaine McCluskey [mccluskey@fnal.gov]
Sent: Thursday, September 23, 2004 11:41 AM
To: 'Lee Hammond'; 'Steve Krstulovich'; 'Rod Walton'; Bill Foster; Chuck Federowicz; David Finley; Dixon Bogert; Duane Plant; Ed Crumpley; fgarcia@fnal.gov; Rich Stanek; Shekar Mishra; 'Steve Geer'; Tom Lackowski; Vic Kuchler; Weiren Chou
Subject: Notes from 9/22/04 Linac Proton Driver Meeting - Civil

Attendees: Bill Foster, Weiren Chou, Fernanda Garcia, Tom Lackowski, Steve Krstulovich, Lee Hammond, Chuck Federowicz, Rod Walton, Vic Kuchler, Elaine McCluskey

Items discussed:

1. Environmental Process:

- a. Rod described what he saw as the way the process would work to address environmental concerns on this project.
- b. NEPA process with DOE: would require preparation of either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS).
 - i. Could talk informally to DOE-Fermi or up even to Headquarters to get their input.
 - ii. Formally - We might recommend to DOE that an EA would be required through a submittal process. They could concur and say go ahead, do the EA. Outcome would be either a Finding of No Significant Impact (FONSI) or yes, there's an impact, do an EIS.
- c. No project at Fermilab has ever required an EIS, but 7-8 have required an EA. NuMI had an EA. MI didn't, but probably would need one if it were done today.
- d. EAs typically take about 1 year to complete with initiating the process, putting documentation together, submitting it to DOE, then iterating with them.
- e. EISs typically take about 3 years to complete.
- f. DOE regulations about when an EA is needed: for a particle accelerator include low-med beam intensity (100 MEV) but with EIS, regulations are less well-defined. In general, DOE believes that the size and impact of a project environmentally will increase with beam power. This may or may not be true.
- g. How have recent DOE projects been evaluated: SNS had to do an EIS. We should compare this project with other recent projects to see how it might compare. After the meeting, Rod found the DOE web page where NEPA actions can be accessed via <http://www.eh.doe.gov/nepa/>. There is a drop-down menu where you can look at a list of EAs and EISs. Rod found the following list of projects by searching with keywords (electron, neutron, proton, beam, accelerator, source). He believes that some of the EAs (e.g., the B-Factory, APS) are very comparable to the PD. Rod believes we should push DOE for a determination that an EA is sufficient. He will begin to get some idea of the scope of these projects relative to PD. (note that some of these EA/EIS reports can be accessed without a password, some require a password from DOE that you can obtain via instructions on the website)

EIS

Final Environmental Impact Statement - Construction and Operation of the Spallation Neutron Source, (April 1999)

EA

Multipass Beamlet Testbed in Building 381 at LLNL
 1-2 GEV Synchrotron Radiation Source at Lawrence Berkeley Laboratory
 Proposed 7-GEV Advanced Photon Source
 Environmental Assessment for Enhanced Operations of the Advanced Photon Source at Argonne National Laboratory-East, Argonne, Illinois
 Environmental Assessment Proposed Upgrade and Improvement of the National Synchrotron Light Source Complex at Brookhaven National Laboratory Upton, New York
 Environmental Assessment for the Linac Coherent Light Source Experimental Facility at the Stanford Linear Accelerator Center, Stanford, California
 Environmental Assessment Proposed Neutrino Beams at the Main Injector Project
 Environmental Assessment: Change in Operating Parameters of the Continuous Electron

Beam Accelerator Facility and Free Electron Laser, Thomas Jefferson National Accelerator Facility, Newport News, Virginia
 Proposed B-Factory (Asymmetric Electron Positron Collider), Stanford Linear Accelerator Center, Stanford, CA
 Proposed Fermilab Fixed Target Experiment: Kaons at the Tevatron
 Proposed Casey's Pond Improvement Project, Fermilab, IL

- h. Cost to do an EA: Rod said range is \$200k - \$80M, but probably in the several hundred \$k is reasonable for this project. Could start process as soon as reasonable understanding of project is available. Rod thought certainly with a CD-0 report, this could be started. Also, should include in CD-0 report the environmental planning for this project.
 - i. What constitutes a wetland, and do we think there are any problems in the Main Ring area:
 Conclusion was that current alignment planned on the north side of the ring avoids south wet areas, and should be ok. Wetland determination would confirm this. Also, reminder that wetland isn't defined just by wet ground, but includes the plant and soil types found in the area.
 - j. Groundwater part of environmental assessment: yes, but may not be an issue for this project, and existing groundwater wells, monitoring, and information may be enough. Meeting with lab ESH will be arranged to discuss this
2. Cooling: Lee and Steve related the impact of MI Upgrades on existing and planned infrastructure.
 - a. Assume existing Linac/Booster are non-operational, 8MW cooling capacity is available at CUB. For 0.5MW machine, existing piping to MI60 and existing cooling capacity could take care of cooling needs for RF. Also, would have ample capacity (though no redundancy) for transitional time. Steve/Lee believe a 4-5 acre pond would be needed similar to Pond A at MI for LCW cooling needs.
 - b. Clarified that criteria given for MI Upgrades includes any interim upgrades between present day and PD time.
 - c. Bill asked that it be determined if a 0.5MW machine including MI Upgrades could be built without building any ponds.
 3. Civil drawings: Chuck received from Weiren points defining transport line. After some translation and conversion, Chuck will plot them on the civil drawing.
 4. Reqs in process for architect/drafting/electrical support: Bill said he needs to discuss with Steve Holmes about budget.

ITEMS FOR NEXT WEEK:

Chuck hopes to have the transport line (from Weiren) plotted on the site plan.

Elaine will bring results of discussion about ground water to the meeting.

Steve/Lee will come back with answer to 2c above.

ACTION ITEMS:

Rod will be exploring costs for doing a wetland determination for the linac/transport line from a consultant.

Elaine will set up meeting with Paul Kesich from ESH for groundwater and PD discussions before next week.

Lee/Steve will create spreadsheet for 0.5MW and 2MW machine (with MW, not tons) showing heat load requirement assumptions, cooling strategies and options for PD and for MI Upgrades.

Elaine McCluskey
 Fermi National Accelerator Laboratory
 FESS Engineering
 (630) 840-2193
mccluskey@fnal.gov